INTERNATIONAL PEDIATRIC FOOT AND ANKLE SEMINAR

ACFAP
American College of Foot and Ankle Pediatrics

Jackson Hole, WY
2018
May 31–June 2

Yellowstone National Park
Grand Teton
Snake River Lodge & Spa

PLAY HERE
LEARN & STAY HERE

ACFAP.org
Our Objectives Today!

- Recognize common foot types and start associating common conditions with biomechanical explanations

- Learn the age specific biomechanical milestones

- Learn that the pediatric diagnosis “Growing Pains” is commonly NOT REALLY THAT AT ALL!

- Learn how easy and fun biomechanics and treating kids biomechanically can be! Oh and how super important it is!

- Be able to effectively educate your pediatric patient and their parents on the relationship between foot-types and foot conditions. The cornerstone of any great podiatric practice!
Age Specific Parameters for Pediatric Foot Development

- A child begins to walk around 10-14 months of age, at which time up to 6° heel valgus is considered normal
- Calcaneal valgus diminishes by 1° per year until age 6 at which time the heel should be vertical
- By age 13 a youths foot will take on its final adult form and the calcaneus will ideally be inverted 4-5°
- 10-15% of the population will end up with excessively inverted heels (Pes Cavus)
1-4 y.o.
1-4 year olds
Have You Considered?

👣 Balance
👣 Coordination
👣 Posture
👣 Strength
3 Questions

Ask Yourself & The Parents

1. How Flat is it?

1. Is there a Family Hx. / Parent Involvement?

1. Does the foot impair the child? AT ALL!!!!!
Varus Heel Inverted

Valgus Heel Everted
For age ranges 1-4 years old a child most likely will have a flat looking foot. This is considered normal. The two treatable "foot" issues for this age range involve not the fact that someone is flatfooted or not, but a) the degree of calcaneal valgus or heel eversion and/or or b) the milestone/gross motor impairment created from significant flatfoot.
5-9 Years Old

“Developmental Flatfoot”

“Flat is not Normal!!!!!!”
Developmental Flatfoot

Children do not outgrow this (Symptoms later)

**Remember:** lack of symptoms is an unreliable indicator of foot function in any age group, especially the pediatric patient
It’s time to Let The Fun Begin!

10y.o. to Your Oldest Patient!
SEVERE PES CAVUS

KEY ORTHOTIC FEATURES
- Lateral Forefoot Posting
- 1st MTH Cut-Out
- Deep Lateral Heel Cup
- Equinus Correction
- Great for Ankle Instability!

POSSIBLE CLINICAL SYMPTOMS
- Lateral Ankle Instability
- Peroneal Tendonitis
- Heel Pain
- 5th MTH Metatarsal Base Pressure
- Lower Back Pain
- Sacroiliac Pain
- Often Unilateral if associated with leg length inequality

MILD PES PLANUS

KEY ORTHOTIC FEATURES
- Medial RF Posting
- Intrinsic Lateral FF Posting
- Mild Medial Skive
- Great for FL-Doong!

POSSIBLE CLINICAL SYMPTOMS
- Toe-In Gait
- Neuromas
- Sesamoids
- 1st Ray Hypermobility
- Sacroiliac Pain

NEUTRAL FOOT

KEY ORTHOTIC FEATURES
- Neutral RF Posting
- Medium Arch
- Standard Foot
- Great for Hip and Back Pain!

POSSIBLE CLINICAL SYMPTOMS
- Hip Pain
- Lower Back Pain
- Tibial Subluxation Syndrome
- Retrocalcaneal Heel Pain
- Haglund's Deformity
- Medial Hallux Plana Callus

MODERATE PES PLANUS

KEY ORTHOTIC FEATURES
- Deep Heel Cup
- Medial RF Posting
- Moderate Medial Skive
- Medical Eare
- Great for Forefoot Pain!

POSSIBLE CLINICAL SYMPTOMS
- Plantar Fasciitis
- Metatarsalgia
- Functional Hallux Limitus
- Patellofemoral Pain Syndrome
- Posterior Tibial Tendonitis
- Neuromas
- Dorsal Blisters

ABDUCTOVARUS FOREFOOT

KEY ORTHOTIC FEATURES
- Medial RF & FF Posting
- 5th MTH Cut-Out
- 1st MTH Relief
- Mild Medial Flare
- Great for Foot & Knee Pain!

POSSIBLE CLINICAL SYMPTOMS
- Plantar fasciitis / heel pain
- Shin Splints
- Knee Pain
- Talar's Bunionette
- Calcanear Apophyseal (Sever's Disease)
- Osgood-Schlatter Disease

SEVERE PES PLANOVALGUS

KEY ORTHOTIC FEATURES
- Depth Orthosis
- Large Medial Skive
- Medial RF & FF Posting
- 1st MTH Cut-Out
- Great for PTDD!

POSSIBLE CLINICAL SYMPTOMS
- Patellar Instability
- Severe MT Instability
- Propels from Central MTHs
- Lateral Column Instability
- Large Toe Box
- Flat Arch

LATERAL COLUMN INSTABILITY

KEY ORTHOTIC FEATURES
- Medial Heel Whip
- Great for Hip Pain

POSSIBLE CLINICAL SYMPTOMS
- Plantar fasciitis / heel pain
- Shin Splints
- Knee Pain
- Talar's Bunionette
- Calcanear Apophyseal (Sever's Disease)
- Osgood-Schlatter Disease

POSTERIOR TIBIAL DYSFUNCTION

KEY ORTHOTIC FEATURES
- Medial RF Posting
- 5th MTH Cut-Out
- Medial Heel Whip

POSSIBLE CLINICAL SYMPTOMS
- Tibial Instability
- Tarsal Tunnel Syndrome
- Tibial Fracture
- Knee Valgus/DJD
- Subfibular Impingement
- HAV/ Bunions
- Splayfoot

TIBIAL TUBEROSITY IMPLANTATION

KEY ORTHOTIC FEATURES
- Medial RF Posting
- 5th MTH Cut-Out
- Medial Heel Whip

POSSIBLE CLINICAL SYMPTOMS
- Tibial Instability
- Tarsal Tunnel Syndrome
- Tibial Fracture
- Knee Valgus/DJD
- Subfibular Impingement
- HAV/Bunions
- Splayfoot
Knowing The Patient

BEFORE

Knowing The Patient
Osgood Schlatters, Severs & Shin Splints
Patellofemoral Pain Syndrome
Being Picked on

HI, I'M GOING TO RUIN YOUR LIFE!
YABBA-DABBA-DO!
# Moderate Pes Planus

**Key Orthotic Features**
- Deep Heel Cup
- Medial RF Posting
- Moderate Medial Skive
- Medial Flare

**Possible Clinical Symptoms**
- Plantar Fasciitis
- Metatarsalgia
- Functional Hallux Limitus
- Patellofemoral Pain Syndrome
- Posterior Tibial Tendonitis
- Neuromas
- Dorsal Bunions

**Diagram Details**
- Neutral Toe Out
- Pronation through Midstance
- Midtarsal Joint Instability
- Neutral Toe Sign
- Moderate Internal Tibial/Fibular Rotation
- Low Arch
- Vertical Heel Alignment
- Neutral Forefoot Alignment
- Foot Progression Angle
- Calluses
Foot Pain!
SEVERE PES PLANOVALGUS

KEY ORTHOTIC FEATURES
- Depth Orthosis
- Large Medial Skive
- Medial RF & FF Posting
- 1st MTH Cut-Out to ↑ Peroneal Function
  Ideal for PTTD!

POSSIBLE CLINICAL SYMPTOMS
- Posterior Tibial Dysfunction
- Tarsal Tunnel Syndrome
- Plantar Fasciitis
- Patellofemoral Pain Syndrome
- Subfibular Impingement
- Hallux Limitus
- Splayfoot

Lateral Column Instability
- Pronates through Propulsion
- Severe MTJ Instability
- Propels from Central MTH’s

GAIT
- Splaying Toe Sign
- Large Internal Tibial/Fibular Rotation
- Large Toe Sign
- Everted Heel Alignment
- Flat Arch
Ankle Pain
SEVERE PES CAVUS

KEY ORTHOTIC FEATURES
- Lateral Forefoot Posting
- 1st MTH Cut-Out
- Deep Lateral Heel Cup Correction

POSSIBLE CLINICAL SYMPTOMS
- Lateral Ankle Instability
- Peroneal Tendonitis
- Heel Pain
- 5th Metatarsal Base Pressure
- Lower Back Pain
- Sesamoiditis, HAV, Hammer Toes
- Knee Recurvatum

- Poor Shock Attenuation
- Excessive Supination
- Narrow or Cross Over Gait

PROPULS forcefully from 1st Metatarsal

CALLUSES

“PEEK-A-BOO” HALLUX TOE SIGN

LARGE EXTERNAL TIBIAL/FIBULAR ROTATION

FOOT PROGRESSION ANGLE

CAVUS / HIGH ARCH

LARGELY INVERTED HEEL ALIGNMENT

VALGUS FOREFOOT ALIGNMENT
Achilles Tendonitis/
Lower Leg growing Pains
NEUTRAL FOOT

KEY ORTHOTIC FEATURES
- Neutral RF Posting
- Medium Arch
- Standard Depth

Great for Hip & Back Pain!

POSSIBLE CLINICAL SYMPTOMS
- Retrocalcaneal Bursitis
- Lateral Hip Pain
- Haglund’s Deformity
- Lower Back Pain
- Iliotibial Band Syndrome
- Pinch Callus Medial Hallux

- Poor Shock Attenuation
- Restricted STJ Pronation
- Propels off Medial Hallux

Toe Out Gait

FALSE TOE SIGN
MODERATELY INVERTED HEEL ALIGNMENT
NORMAL EXTERNAL TIBIAL/FIBULAR ROTATION
MEDIUM ARCH

FOOT PROGRESSION ANGLE
NORMAL FOREFOOT ALIGNMENT
Thank You!
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